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Blended e-Learning: a new approach to environmental education of Iran high schools

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Abstract

With the aim of studying teachers' viewpoints regarding the role of face to face education, e-leaning, and blended e-learning approaches in fulfilling the goals of environmental education of Iran high schools, 50 education experts of Fars province high schools were chosen through multi-stage cluster sampling and answered to a researcher-made questionnaire about the effectiveness of each of these approaches. The results generally showed that education experts ' view, the blended e-learning can have the greatest impact on advancing the environmental education goals and enhancing high school students learning.

Keywords: e-learning; blended e-learning; face-to-face education

1. Introduction

Environmental education is the most effective method to protect our environment- which aims at finding the best method for presenting information, determining quality of functions and executing a structure which in turn can be a ground for improving Environmental awareness all around the society (Moharral Neghad and Heydari, 2006). Paying attention to the process of teaching Environmental issues and being familiar with the new pedagogical methods on local and national levels as means of improving people's knowledge about their environment is so important (Mahmodi and Veisi, 2005). Environmental education refers to some organized efforts which teach the ways in which our environment works. It especially teaches management of human beings behavior and ecosystems, in order to reach constant life.

Additionally, improving students' knowledge and sensitivity via formal and informal education has its own importance and a special priority. The problem is that there's a constant trend toward ruining environment. To stop this trend participation of all members of a society is needed. One of the most effective ways of teaching Environmental issues is formal education. In our country, high schools are more concentrated on nurturing special talents and affording vocational needs of the society than other educational levels. There are many different methods and procedures to present environmental education appropriately. This education can be either traditional or modern one. In order to improve the quality of educational studies, education needs innovation and new perspectives (Hoic-

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Boznic, Vornar and Boticki, 2009). That is why so many studies have tried to find new methods and techniques for more effective education, which have specifically supported by advanced technologies. Up to the moment and because of information technologies and advances in communicational methods, many innovations have been added to the educational methods. In order to find the existing requirements in educational studies, many different methods and techniques have been invented and used. So that, in order to select the most appropriate method in environmental education; the present study tries to study different educational methods and techniques via notions of prominent experts in environmental education and electronic learning (e-learning). Education via electronic learning is defined as education which aids other technologies to access learners who are in distant locations and encourage them to interact with the other classmates via specific techniques (Keegan, 2004; Kaya, 2002). In the other words it can be said that electronic learning means bringing learning to people instead of bringing people to learning. Electronic learning complete current educational methods, while in some cases replace them. Electronic learning provides an effective environment for teachers to access better educational conditions with their learners. According to Kose(2010), electronic learning can provide the needed flexibility in educational environments which are lacked in other educational environments. Additionally, electronic learning technologies can help teachers and learners to perform their educational functions more effective. Salter et al (2000), indicated that on line discussion provides opportunities for participated learning and developing communicational skills. The term participation refers to getting involved in each other's experiences. Moreover, critical thoughts which are used in on line discussions, give learners an opportunity to analyze their observations and find more logical answers to their mailed questions. However, this educational method has some problems which effect educational procedure. For example, it is always hard to provide an effective and socialized educational procedure in electronic learning. Nowadays, it is believed that electronic learning harms interpersonal interactions. Among other shortcomings of this method of education, we can mention laziness and inhuman relations or mechanical relations. High rate of students leaving education is a big problem for any educational system. This problem is so prominent in electronic learning models (Berge& Yi-Ping, 2004). However, in contrast to electronic learning, traditional methods lack time flexibility and necessitate physical presence in classes in most days of the week. But this paradigm gives learners the opportunity to ask their questions. The main challenge in front of traditional methods is that, although free discussion in class can bring up many new ideas and question, however due to lack of time, many of them are overlooked. It is believed that on line communication can overcome this problem and motivate generation of knowledge. That's because learners can save their questions on line and they have the option to continue their previous discussions and findings. Shortcomings of traditional and electronic methods necessitate more endeavors to find better methods which can utilize advantages of both methods. Lastly, a new educational model has been made which is called as "blended electronic learning". During the past decade, technological advances have caused minimization of the differences between traditional education and electronic education; that is because both of them have their own advantages and shortcomings. Numerous studies have conducted on use of data, on line and off line activities and to investigate learning strategies which incorporate educational potential of on line and face to face educational methods. In fact the term" blended electronic learning has been coined from these studies (Sharpe et al, 2006). Blended learning has been referred to as the third generation of distant educational systems. First generation was correspondence method; in which an educational package was being delivered to a learner via post offices, television or radio stations. The second generation was a unique distant education, such as computer-based or web-based learning. The third generation is blended learning which incorporate the best characteristics of both the previous methods into it (Pheeps and Meriotees,1999; by So and Brush,2008). Blended learning cause significant improvements in levels of active learning strategies, student to student learning strategies and student based learning strategies (Hartman,Duziuban and Moskal,1999; Morgan,2002). At last and based on what was said about advantages and shortcomings of electronic, face to face or traditional, and blended electronic education, the main goal of this study is to compare and determine efficacy of each method in accomplishing the goals of environmental education at high school level.

2. Methodology

Methodologically, this is a descriptive and ex-post facto research.

3. Participants

In order to do this study, 150 environmental expert educators of Fars province were selected via simple random sampling; then they were randomly assigned into three groups-each with 50 members. At last each group randomly judged efficacy of a method (distant, traditional and blended).

4. Instrument

In order to gather data a self report questionnaire with 25 items-using likert scale- was used. It determines accomplishment of environmental education goals on four levels: knowledge, awareness, research, and practical skills. The alpha coefficients for knowledge, awareness, research, and practical skills subscales are respectively 0/75, 0/73, 0/70 and 0/68. Content validity of the questionnaire was determined based on electronic learning and environmental expert educators' viewpoints.

5. Findings

Based on our goal to determine the most effective educational method (blended, distant and traditional) in environmental education, ANOVA was used. Table-1 presents results of ANOVA alongside with Tukey test results.

Table-1 results of ANOVA and Tukey for comparison among environmental educational methods

Level Of goal	method	Mean	(total)df	F	sig	(I-J)	Mean difference
knowledge	blended	27/1	149	14/25	0/00	blended distance	1/94*
	Tradition	23/85				blended Tradition	3/95*
	distance	25/16				distance Tradition	2/01*
awareness	blended	18/02	149	16/92	0/00	blended distance	1/7*
	Tradition	14/24				blended Tradition	3/78*
	distance	16/32				distance Tradition	2/08*
Research	blended	19/16	149	16/54	0/00	blended distance	1/38*
	Tradition	16/36				blended Tradition	2/8*
	distance	17/78				distance Tradition	1/42*
Practical skills	blended	9/1	149	15/75	0/00	blended distance	1/7*
	Tradition	6/64				blended Tradition	2/46*
	distance	7/4				distance Tradition	0/76

As it can be seen in the above table, observed F ANOVA for comparing environmental educational methods for knowledge is 14/25 which is statistically significant ($p<0/01$). So there is a difference among environmental educational methods (blended, distant, and electronic). Given the results of tukey test and based on environmental education and electronic learning experts' viewpoints blended, distant and traditional educational methods, respectively, have the highest to the lowest effectiveness in accomplishing environmental education goals at knowledge level. Moreover, the observed F ANOVA for comparison among environmental education methods in accomplishing the goals at awareness level equals 16/92 which is statistically significant ($p<0/01$). So that given the extent of reaching the expected goals there is a difference among different educational methods (blended, distant and traditional). Based on results of tukey test blended, mean scores for distant and traditional educational methods respectively are 18/02, 16/32 and 14/24; so it can be said that respectively they have the highest to the lowest effectiveness in accomplishing environmental education goals. The observed F ANOVA for comparison among

environmental education methods in accomplishing the goals at research and evaluation level equals 16/54 which is statistically significant (p‹0/01). So that there is a difference among educational methods at research and evaluation level. Based on results of tukey test blended, mean scores for distant and traditional educational methods respectively are 19/16, 17/78 and 16/36; so it can be said that respectively they have the highest to the lowest effectiveness in accomplishing environmental education goals. The observed F ANOVA for comparison among environmental education methods in accomplishing the goals at practical level equals 15/75 which is statistically significant (p‹0/01). So that there is a difference among educational methods at research and evaluation level. Based on results of tukey test blended, mean scores for distant and traditional educational methods respectively are 9/1, 7/4 and 6/64; so it can be said that they have respectively the highest to the lowest effectiveness in accomplishing environmental education goals.

6. Discussion

This study has been conducted aims at comparing the effectiveness of blended, distant and traditional educational methods in accomplishing environmental education goals at high school level in Iran. To achieve this goal and based on experts' viewpoints, accomplishing environmental education goal were examined at four levels: knowledge, awareness, research and evaluation and practical skills. We'll discuss the results of analyses in advance. Results of data analyses indicated that based on environmental education experts' viewpoints, utilizing blended educational method at high school level is more effective than other educational methods. There are some reasons behind this choice. Graham, Allen and Ure (2003) indicated that people choose blended method for three reasons: 1) improved pedagogy 2) improving accessibility and flexibility 3) cost effectiveness. The most common goal of blended learning method is to combine advantages of both the other methods: traditional and on- line (Graham, Allen and Ure, 2003; Kumar, 2007). According to De Lacey and Leonard (2002), and So and Brush (2008) combining on- line sessions with face to face traditional interactions will improve learners' satisfaction level. Additionally, electronic education gives learners plenty of information, so they can continue their studying independently (Waddoups and Howell, 2002). Blended educational method increases levels of active learning, learner to learner interaction and learner based strategies (Hartman, Duziuban and Moska, 1999; Morgan, 2002). Blended educational method which is considered as the third educational generation (Sue and Brush, 2008), have the potential to adapt to situations, learners and educational contents. At blended educational environment, learners can self direct their learning procedure. The most important goal of any educational method is to make a permanent learning which last even after final exams. Studies have shown that blended educational method have some advantages such as access to learning content, speech effectiveness and connection between learner with the teacher (Jonassen,2000); moreover, it improves teaching effectiveness and effective teaching, which in turn improve critical thinking and higher levels of learning. Blended methods are based on the assumption that it combines advantages of both traditional and e-learning, so it seeks a balance between accessibility to knowledge of electronic learning and human interaction of traditional method. At different fields of studies, this balance differs. Because of the nature of educational goals, students' characteristics, and teachers' background knowledge and on- line resources, some fields of studies implies more interactive or on- line methods. Since teaching skills at one hand and maximum participation at the other hand are important in environmental education, so blended electronic learning can accomplish environmental education goals at high school level at all knowledge, awareness, research and evaluation and practical skills levels more effectively.

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